

We claim:

1 1. A built-in self-test circuit for testing a serializer/deserializer circuit
2 comprising:

3 a transmit register that transmits data to the serializer/deserializer for
4 processing into processed data;
5 a receive register that receives the processed data from the
6 serializer/deserializer; and
7 an error detector that detects errors in the processed data,
8 the transmit register being a programmable transmit register that transmits
9 data having programmably varying characteristics.

1 2. The built-in self-test circuit of claim 1 wherein the programmably varying
2 characteristics includes data sequence.

1 3. The built-in self-test circuit of claim 1 wherein the programmably varying
2 characteristics include data sequence length.

1 4. The built-in self-test circuit of claim 1 wherein the programmably varying
2 characteristics include data sequence and data length.

1 5. The built-in self-test circuit of claim 1 wherein the programmable
2 transmit register comprises a programmable bit sequence generator that generates
3 the transmitted data.

1 6. The built-in self-test circuit of claim 1 wherein the programmable
2 transmit register comprises a shift register.

1 7. The built-in self-test circuit of claim 1 wherein the programmable
2 transmit register comprises a pseudo random counter.

1 8. The built-in self-test circuit of claim 1 wherein the programmable
2 transmit register comprises a register array and pointer.

1 9. The built-in self-test circuit of claim 1 wherein the programmable
2 transmit register comprises a pseudo random counter and a register array.

1 10. The built-in self-test circuit of claim 1 wherein the transmitted data and
2 processed data are parallel data.

1 11. The built-in self-test circuit of claim 1 wherein the error detector
2 comprises a comparator.

1 12. A built-in self-test circuit for testing a serializer/deserializer circuit
2 comprising:

3 a programmable transmit register that transmits data having programmably
4 varying data sequences to the serializer/deserializer for processing into processed
5 data;

6 a receive register that receives the processed data from the
7 serializer/deserializer; and

8 an error detector that detects errors in the processed data.

1 13. The built-in self-test circuit of claim 1 wherein the programmably varying
2 data sequences have programmably varying data sequence lengths.

1 14. The built-in self-test circuit of claim 12 wherein the programmable
2 transmit register comprises a programmable bit sequence generator.

1 15. The built-in self-test circuit of claim 12 wherein the programmable
2 transmit register comprises a pseudo random counter.

1 16. The built-in self-test circuit of claim 12 wherein the programmable
2 transmit register comprises a register array and pointer.

1 17. The built-in self-test circuit of claim 12 wherein the programmable
2 transmit register comprises a pseudo random counter and a register array and
3 pointer.

1 18. An integrated circuit comprising:
2 a serializer/deserializer circuit that processes data; and
3 a built-in self-test circuit that includes,
4 a programmable transmit register that transmits data having programmably
5 varying characteristics to the serializer/deserializer circuit for processing into
6 processed data;
7 a receive register that receives the processed data from the
8 serializer/deserializer; and
9 an error detector that detects errors in the processed data.

1 19. The integrated circuit of claim 18 wherein the programmable transmit
2 register comprises a pseudo random counter.

1 20. The integrated circuit of claim 18 wherein the programmable transmit
2 register comprises a register array and pointer.

1 21. In an integrated circuit, a method comprising:
2 providing programmably varying data to a serializer/deserializer circuit;
3 processing the transmitted data with the serializer/deserializer circuit to
4 produce processed data; and
5 testing the processed data for errors.

1 22. The method of claim 21 wherein the providing step includes varying
2 data sequences in the data.

1 23. The method of claim 21 wherein the providing step includes varying
2 data sequence length of the data.

1 24. The method of claim 21 wherein the testing step includes comparing
2 the provided data to the processed data.